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Use of computerized accounting system and cost accounting techniques in hospital settings of UAE

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Abstract: Currently, the increasing complexity of medical care and technological innovations in the UAE has mainly highlighted the requirement for a cost-effective strategy for patient care within the hospital settings. This study mainly emphasizes on the emergence of accounting change and accounting innovations. A search of literature on Pubmed and government websites since 2016 until this day was performed. Where possible, different keywords derived from the aims of the study were mapped to the subject headings. For the purpose of ensuring that all relevant articles were examined, tracking of citations of all the included articles was undertaken by using google scholars, while the scanning of references of the bibliography of all the articles included was also performed. This article reviews accounting as a social practice by analyzing the emergence of specific accounting innovations, mainly costing techniques, within the health sector, and the expectations from such an innovation along with its consequences and effects. These types of systems can serve as a valuable tool for evaluating and controlling the cost of the departments. When used in such manner, it can prove to be helpful and furnishes essential knowledge which is important for controlling cost and determining alternatives services. There is a need to conduct additional research in the future on the concept of adoption of computerized accounting systems as well as the utilization of cost accounting techniques in specific health care organizations which were not included in this study so as to acquire a more realistic view of the problem.

Keywords: Computerized Accounting System, Cost Accounting, UAE, Accountants, Technology, Healthcare, Hospitals.

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1. INTRODUCTION

Information technology is widely known to impact the process of accounting in a beneficial way. It is primarily hard to see individuals anywhere performing accounting with pencil and paper nowadays. As accounting is about dealing with information, any advancement carried out in the area of information technology will have a constructive impact on the accounting department within any organization [1]. Over the last few decades, the healthcare sector has been affected by changes in the techniques of reimbursement as it gradually moved from being a cost center to a profit-center and eventually to an investment center [2]. The results of such variations have been perceived by many as unfavorable for the patient care quality. Examining the role of accounting in calculating the costs of the healthcare sector as well as scarce resource allocation starting in the 1950s until our current days, it has been observed that the earlier mentioned changes have led to concerns about the impact on all the stakeholders as to resource allocation from an ethical perspective. Institutions and individuals together play a crucial role in determining the cost of healthcare as well as in allocating the scarce resources of the healthcare system within the UAE [3].

With respect to the technological advancements across all economic sectors globally, UAE has acquired a virtuous reputation as a medical and health attraction. For example, Dubai spends more than 3.4% of its GDP on the healthcare sector annually [4], and some of this volume is owed to medication. In spite of the huge extent of expenditure for a country with a population of approximately 9 million people, of whom a majority on medical insurance, the UAE health sector is still suffering from the high cost of the medical procedures as well as from medical wastage in both the private as well as public sectors. Offering medical services at a desired quality and quantity leads towards a higher cost. Worldwide, many countries are also suffering from the negative consequences of this problem.

Accounting information system (AIS) is thought to be a part of an inclusive information system. It plays an active role in offering all levels of decision makers with precise, and timely information that aids them to opt for the right decision [5]. This type of information is mainly offered through statements and reports combined with an actual data being presented daily. An AIS is very beneficial as it is part of an organization to aid it in controlling all financial its decision making related activities [6]. The values of an appropriate and efficient system of accounting is shown by its capability to assist all groups by contributing to cost reduction,

improvements in the quality of services, along with eliminating all the activities that cause unnecessary waste of resources. It, therefore, contributes to experience and knowledge that ultimately leads to developing the society as well as elevating its competitive benefit via the ability of a system to offer the correct information at the right time.

This paper aims to explore the role of accounting information systems, particularly the Computerized Accounting Systems, on accounting for the allocation of scarce resources and healthcare costs during the evolution of the Emirati healthcare system, both in the past and for the future; mainly observing the direct and indirect impact on all stakeholders such as insurance companies, physicians, patients, and managers are impacted. Furthermore, cost accounting techniques are also reviewed. Lastly, conclusions are drawn with regards to the accounting (as a profession, business, and process) and the accountant's responsibility. Previous researches had been conducted related to the computerized accounting system and cost accounting techniques, mainly focusing on academic and private sectors, hence, there is a lack of studies which have been conducted within the governmental context, particularly, in the hospital settings.

2. RESEARCH METHOD

The aim of this study was to examine what the literature has published about the use of cost accounting systems and CAIS in healthcare and hospitals of UAE. Different data sources were gathered from online databases, such as PubMed, and comprehensive and systematic searches from government websites in English language was also performed. Generally, different international scientific accounting journals were searched for articles about "health care", "hospital", "cost accounting techniques" and "computerized accounting information".

An abundant amount of evidence was identified, which needed constricted inclusion as well as exclusion criteria for limiting the scope of the study. The focus of this study was limited to cost accounting and CAIS in the hospital settings. To present a current perspective, articles written in English language, research published from 2000- 2016, related to cost accounting and CAIS, and mainly focusing on hospitals and health care sectors were included. Articles excluded from the study were studies written in a language other than English, not related to cost accounting and CAIS, and which were conducted before 2000. The search resulted in 32 relevant articles that were then analyzed and classified. Reference lists of relevant articles were also

reviewed to identify additional evidence. Full texts were then retrieved (8 articles) for careful reading and assessment.

3. RESULTS

This review identified 8 relevant studies. The studies were then categorized and from these, emerged different themes, determining an important focus of the research including the role of computerized accounting systems and cost accounting techniques used in the hospital settings across UAE.

3.1 Computerized Accounting System (CAS)

CAS, or “Computerized Accounting Information System (CAIS)”, with respect to the healthcare settings, has turned into an essential tool to develop the organization competence and support its competitiveness by offering management with accounting as well as financial information. This evidence is also utilized to create various decisions related to planning, controlling, and evaluation of performance [7]. In such an emergent economy, the “Computerized Accounting System” usage is important in accomplishing a certain task efficiently and effectively. Thus, to certify that CAS can be used with its highest advantages, the approval of a certain system is critical not only from the viewpoint of the users but correspondingly from the context of the healthcare sector [8]. CAS are needed for quick analysis, reporting, accuracy, timeliness, and speed of performing routine transactions to help in the delivery and management of the patient care.

Saleh [10], revealed that a computerized accounting information system helps an organization to undertake its activities along with offering information to a variety of users based on their interest. It is observed as a human interaction and technological combination that small institutions can make use of CAS to accomplish an excellent and efficient operation. The role of accountants is critical in the process of decision-making linked with CAS, and it aids to affluence the duty of accountants such as keeping records for which the account management, as well as computerized accounting, were mainly customized. Hence, due to this reason, CAS contributed toward time efficiency and information accuracy, consecutively leading to the effectiveness of cost. Information technology revolution has elevated the efficiency of accounting since the CAS software’s can help in making things more cost effective and smart, aligning with the target of

governments to have improved records and eventually improved the healthcare sector management. El- Dalabeeh examined the computerized accounting information systems role in limiting the medical service cost at “King Abdullah University Hospital.” The results of the study demonstrated that computerized accounting information systems play a crucial role in limiting the medical service cost at a hospital as compared to the non-computerized systems that mainly need higher costs and do not contribute to limiting the costs of medical services [10].

3.2 Cost Accounting Procedures

Hospitals are considerably adopting additional sophisticated cost accounting procedures with regards to their ever-changing as well as extremely restrictive financial environment. The cost accounting is a discipline that mainly concentrates on isolating and identifying the cost of producing services and goods. As soon as a cost is being determined, an institution can considerably evaluate and determine its structure for pricing. At instances in which a certain cost tends to exceed an acceptable price, institutions may select to eliminate services or look up for a lower cost or alternative goods. As the profits from hospitals decline, and financial managers start looking for better and more information regarding their product costs, and they often turn to service and manufacturing industries in the for-profit sectors for cost accounting guidance and insights.

The techniques of cost accounting from a certain industry can considerably be effective to reduce the cost of healthcare. Eldenburg, Schaefer, and Zulof advocated utilizing the system of target costing in the environment of health care. Through these procedures, innovative services may be provided at a specific expense that enhances volume. These services were provided at the target cost permitting the healthcare providers, physicians, and hospitals, to practice effectual cost containment [11].

If the accounting systems, such as target costing systems are to be effective, then the health professionals will be required to have a dominant role in limiting the costs. McGlaughlin and Kalamzy, indicated that physicians tend to play a primary role in controlling costs in addition to making key decisions that impact the health service provisions [12]. It is considerably essential for physicians to identify areas where cost savings being targeted can take place, regardless of reducing the service levels of these patients.

Information technology is a crucial element in controlling a certain cost. Glaser, suggested that the goal of an effective information technology function in a hospital is to expand the services and care offered for the patients, reduce cost, and strive for improved organizational performance [13]. The majority of the hospitals have invested in information systems. Such systems are formed to limit the medical errors. Detmer et al. revealed that such systems permit patients and professionals of health care to have access to the real-time patient data as well as its equivalent medical record. Such systems should bring about improved patient treatments plus decision for patients [14]. With such systems, care should be exhibited; Ash, Berg, and Coriera revealed that these systems considerably have two different types of errors, errors related to the procedure of retrieving as well as entering information followed by the errors in co-coordinating as well as communicating certain medical events [15]. An intensified awareness is required by designers of such system for the purpose of reducing a specific error.

4. DISCUSSION

This review was the first to assess the most widely used computerized accounting system and cost accounting techniques in health care sectors and hospital-based settings. With regards to the changes being made internationally, the healthcare in UAE experienced a major change during the year 1990. At the heart of this transformation has been the expanded and enhanced role of accounting both as a symbol of calculative logic and a set of practices that aids to guide the healthcare funding allocation. Additionally, accounting has an innovative role to play to guide clinical decisions and managerial decisions across hospitals. Overall, the study identified government initiatives, changes in the health insurance market and new legislations led to a need to produce new types of cost information. This, is in amalgamation with the allocation of scarce resources and promotion of accountability, to accounting innovations in the hospitals. The findings of this study offer health care practitioners of health care sectors an initial guide on applications of CAS that are helpful in the hospital settings and follow the cost accounting procedures to reduce the cost of healthcare [16].

A system of computerized accounting often encloses the “computerization of accounting information systems” that is established for the purpose of facilitating the decision-making. These are often linked with a number of advantages like quick analysis, reporting, accuracy, timeliness, and speed of performing routine transactions [17]. The efficient and effective flow of

information increases the decision making of managers, thus, increasing the capability of an organization to achieve their proposed objectives and strategies. This, in turn, may elevate the firm's survival prospects [18]. It can be examined by means of tools used in accounting records and procedures [19].

On the contrary, Sittings demonstrated that innovative information technology presently used sporadically is considerably available for routine use in the clinics. It comprises of "large integrated databases, wireless monitoring devices (both non-invasive and invasive) and real-time clinical decision support systems along with analysis tools for mining data" [20]. Such tools need to improve the well-being of the patients, along with improving the organizations providing these technologies but the cost for individual privacy still needs to be determined along with its impact. For the purpose of controlling cost, activity based costing can be utilized. Comparable to the ABC systems that are employed in manufacturing, a 2 step procedure should be used. Firstly, the cost of a hospital is assigned to several cost pools (for example perform the blood test and administer CAT scan). Such cost can then be charged to a cost object, for example, a department or a patient [21].

There is a need for policy makers to work on strengthening the public hospital's administration in UAE by means of making serious decisions to change the recent system of accounting to the computerized accounting system. Over and above, make serious attempts to access the "governmental financial support" for the purpose of easing the burden of the cost of such hospitals for facilitating the process of adoption with reference to the computerized accounting systems. Future research was recommended and warranted to validate the results, to determine the effectiveness of a computerized accounting system and cost accounting techniques with regards to the cost-effectiveness and outcomes, and to add to the body of knowledge of the role of computerized accounting system in health care sector as well as to show the worth of this role. The limitations of this review comprise of the lack of UAE research available on the role of cost accounting techniques and computerized accounting system that often limits the generalisability of the results to the context of UAE. One of the hurdles experienced while undertaking this research has been to decide what literature and data to exclude. Although the sample size is not a satisfactory basis on which to draw a substantive conclusion, this study has delineated few useful insights and patterns which have been synthesized into common elements related to the role of computerized accounting system.

5. CONCLUSION

The UAE healthcare system, as well as the role that accounting plays in computerized accounting systems and cost accounting techniques in hospital settings have been examined by means of a critical outlook. Managing both the patient care and the cost control can disrupt the quality of care continuity for all the patients, reducing the admission to care for individuals who are not insured, unintended values of lowering quality along with undermining the financial constancy of authoritative institutions such as academic health centers with medical training, technological innovation, and implications for future research. Thus, cost accounting techniques are unlikely to be a solution for refining the performance of the system of health care.

It is recommended that employing computerized accounting information systems by synchronizing up-to-date improvements in software and databases fields is needed. Directing consistent maintenance helps to raise the levels of the services being offered to patients. A system can progress by performing additional research on the role of computerized accounting information systems to limit the medical service cost across UAE hospitals that were not involved in the earlier studies in UAE; mainly increasing work procedures together with the computerized accounting information. This study also recommends three areas for conducting research in future; first additional research needs to be undertaken on the effects of computerized accounting systems on specific health care organizations from different areas to allow for generalization. Secondly, further research should be done on the degree of adaption of computerized accounting system by the hospitals in UAE. Thirdly, more research needs to be conducted on the benefits of computerized accounting systems as compared to manual accounting systems used in hospital settings in the UAE.

6. REFERENCES

1. Lim FP. Impact of information technology on accounting systems. *Asia-Pacific Journal of Multimedia Services Convergent with Art, Humanities and Sociology*. 2013 Dec;3(2):93-106.
2. Kohli R, Kettinger WJ. Informating the clan: Controlling physicians' costs and outcomes. *Mis Quarterly*. 2004 Sep 1:363-94.
3. Finkler SA, Ward DM. *Essentials of cost accounting for health care organizations*. Jones & Bartlett Learning; 1999.
4. Dubai Health Authority (2014), *Health Accounts System of Dubai A baseline for a new era 2012 Report*, retrieved from <http://www.isahd.ae/content/docs/HASD%20English%202012.pdf>
5. Hall JA. *Accounting information systems*. Cengage Learning; 2012.
6. Al-Dhufairy, Nawaf Wabdan, *The Role of AIS in Banking Services Pricing in the Kuwaiti Commercial Banks*, Unpublished MA Thesis, Al al-Bayt University, Mafrq, 2008
7. Mohammad Nayef, A., Jawabreh, O. A. A., Muneer, M. F. J. & Sameer, A. A. Technological impacts on effectiveness of accounting information systems (AIS) applied by Aqaba Tourist Hotels. *European Journal of Scientific Research*. 59(3), 2011; 361-369.
8. DHA. Health Accounts System of Dubai, HASD first update 2013-2014, 2016. retrieved from <http://www.isahd.ae/content/docs/4th%20Report%20-%20HASD%202013-2014.pdf>
9. Saleh, S. A. *A study on the use of computerized accounting systems in small business: A case of small business in Libya*. Unpublished Master thesis, *Universiti Utara Malaysia*. 2011
10. El- Dalabeeh, A. The Role of Computerized Accounting Information Systems in Reducing The Costs of Medical Services at King Abdullah University Hospital, *Interdisciplinary Journal of Contemporary Research in Business*, Oman, 4,6; 2012.
11. Eldenburg, Leslie; Schaefer, Eldon, and Zulof, Dwight, "*Financial Management in Organized Healthcare Delivery Systems in Health Care Administration: Planning, Implementing, and Managing Organized Delivery Systems*, Lawrence Wolper, and Editor. Sudbury (Massachusetts): Jones and Bartlett. 2004

12. McGlaughlin, Curtis and Arnold Kalamzy, *Continuous Quality Improvement in Health Care*, [Sudbury, MA: Jones and Bartlett Publishers: 2006].
13. Glaser J. Wired for success: take a look at the best in healthcare IT and you'll find these key elements: a healthy organizational foundation, a sound link between organizational strategies and the IT plan, and strong project management skills. *Healthcare Financial Management*. 2006 Feb 1; 60(2):66-75.
14. Detmer DE, Steen EB, Dick RS, editors. The computer-based patient record: an essential technology for health care. *National Academies Press*; 1997 Oct 14.
15. Ash J.S., Berg M., Coiera E. Some unintended consequences of information technology in health care: the nature of patient care information system-related errors. *Journal of the American Medical Informatics Association*. 2004 Mar 1; 11(2):104-12.
16. Bodenheimer T. High and rising health care costs. Part 2: technologic innovation. *Annals of Internal Medicine*. 2005 Jun 7;142(11):932-7.
17. DHA. Health Accounts System of Dubai, HASD first update 2013-2014, 2016. retrieved from <http://www.isahd.ae/content/docs/4th%20Report%20-%20HASD%202013-2014.pdf>
18. Platt, H. & Platt, M. Corporate board attributes and bankruptcy. *Journal of Business Research*, 65(8), 2012; 1139-1143
19. Keating, E.K & Frumkin, P. Reengineering Nonprofit Financial Accountability: Towards a More Reliable Foundation for Regulation, *Journal of Public Administration Review*, 63, 3-15; 2003.
20. Sittig DF. Potential impact of advanced clinical information technology on healthcare in 2015. *Medinfo*. 2004; 1379-82.
21. Udpa S. Activity-based costing for hospitals. *Health care Management Review*. 1996 Jul 1; 21(3):83.